10

40

15

may fall within the scope of claims that follow. Finally, structures and functionality presented as discrete components in the example configurations may be implemented as a combined structure or component. These and other variations, modifications, additions, and improvements may fall 5 within the scope of embodiments as defined in the claims that follow.

What is claimed is:

- 1. An optical system, comprising:
- a first light folding element;
- a second light folding element; and
- a lens system located between the first light folding element and the second light folding element, wherein the lens system includes a front aperture stop and a lens stack having four or five refractive lens elements, 15 wherein a second lens element of the lens stack in order from an object side of the lens system to an image side of the lens system has positive refractive power and a concave image-side surface;
- wherein the first light folding element redirects light from 20 an object field from a first axis to the lens system on a second axis;
- wherein the lens elements in the lens stack receive the light through the aperture stop and refract the light to the second light folding element;
- wherein the second light folding element redirects the light from the second axis onto a third axis to form an image of the object field at an image plane; and
- wherein the lens system is movable on two or more axes independently of the first and second light folding 30 elements.
- 2. The optical system as recited in claim 1, wherein the first and second light folding elements are prisms.
- 3. The optical system as recited in claim 1, wherein the lens system is movable on the second axis to provide 35 autofocus functionality for the optical system.
- **4**. The optical system as recited in claim **1**, wherein the lens system is movable on one or more axes orthogonal to the second axis to provide optical image stabilization functionality for the optical system.
- 5. The optical system as recited in claim 1, wherein one or both of the light folding elements can be translated with respect to the second axis independently of the lens system.
- **6**. The optical system as recited in claim **1**, wherein one or both of the light folding elements can be tilted with 45 respect to the second axis independently of the lens system.
- 7. The optical system as recited in claim 1, wherein the lens stack consists of four lens elements with refractive power, in order from the object side of the lens system to the image side of the lens system:
 - a first lens element with positive refractive power for converging light;
 - the second lens element with positive refractive power for converging light;
 - a third lens element with negative refractive power and an 55 aspheric shape to correct chromatic aberration and field curvature; and
 - a fourth lens element with a meniscus shape to correct field curvature;
 - wherein F-number of the lens system is less than or equal 60 to 2.4, and wherein the lens system provides a long back focal length to accommodate the second light folding element.
- **8**. The optical system as recited in claim **1**, wherein the lens stack consists of five lens elements with refractive opower, in order from the object side of the lens system to the image side of the lens system:

16

- a first lens element with positive refractive power for converging light;
- the second lens element with positive refractive power for converging light;
- a third lens element with negative refractive power and an aspheric shape to correct chromatic aberration and field curvature:
- a fourth lens element with an aspheric shape configured as an air-space doublet with the third lens element to correct chromatic aberration and field curvature; and
- a fifth lens element with a meniscus shape to correct field curvature:
- wherein F-number of the lens system is less than or equal to 2.4, and wherein the lens system provides a long back focal length to accommodate the second light folding element.
- 9. An optical system, comprising:
- a first light folding element;
- a second light folding element; and
- a lens system located between the first light folding element and the second light folding element, wherein the lens system includes a front aperture stop and a lens stack, wherein the lens stack comprises four lens elements with refractive power, in order from an object side of the lens system to an image side of the lens system:
 - a first lens element with positive refractive power and an aspheric shape to control spherical aberration;
 - a second lens element with negative refractive power, a convex object-side surface, and an Abbe number that is less than 30;
 - a third lens element with a meniscus shape that has a concave object-side surface in a paraxial region of the object-side surface and a convex image-side surface in a paraxial region of the image-side surface; and
 - a fourth lens element with a meniscus shape to correct field curvature;
 - wherein F-number of the lens system is less than or equal to 2.4;
 - wherein the first light folding element redirects light from an object field from a first axis to the lens system on a second axis;
 - wherein the lens elements in the lens stack receive the light through the aperture stop and refract the light to the second light folding element;
 - wherein the second light folding element redirects the light from the second axis onto a third axis to form an image of the object field at an image plane; and
- wherein the lens system is movable on two or more axes independently of the first and second light folding elements.
- 10. A camera, comprising:
- a photosensor configured to capture light projected onto a surface of the photosensor;
- a first light folding element that redirects light received from an object field from a first axis to a second axis;
- a lens system that includes a front aperture stop and a lens stack having four or five refractive lens elements that refract the light on the second axis, wherein a second lens element of the lens stack in order from an object side of the lens system to an image side of the lens system has positive refractive power and a concave image-side surface;
- a second light folding element that redirects the light refracted by the lens system from the second axis to a